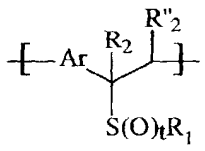
CLAIMS:

1. A method of preparing a polymer which comprises structural units of formula I,



(I)

in which formula:

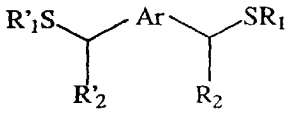
Ar is an aromatic cyclic system with 4 to 20 carbon atoms, which may be substituted with a substituent chosen from among a non-branched C_1-C_{20}-alkyl, C_3-C_{20}-alkoxy, C_1-C_{20}-alkylsulfate, a branched C_3-C_{20}-alkyl, phenyl or benzyl group and which may comprise up to 4 heteroatoms chosen from the group comprising oxygen, sulfur, and nitrogen in the aromatic cyclic system,

t is equal to 0, 1, or 2,

R_1 is chosen from the group comprising a non-branched C_1-C_{20}-alkyl group, a branched C_3-C_{20} alkyl group, a cyclic C_4-C_{20}-alkyl group, a C_1-C_4-alkyl-substituted cyclic C_4-C_{20}-alkyl group, a phenyl group and a benzyl group, which groups may comprise heteroatoms,

R_2 and R''_2 are chosen from the group comprising a hydrogen atom and a C_1-C_{20}-alkyl and C_4-C_{20}-aryl group, which groups may comprise substituents,

characterized in that the method starts with a compound having the formula II



(II)

in which formula

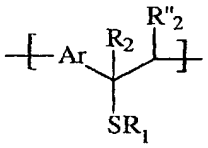
R'_1 is chosen from the group comprising a non-branched C_1-C_{20}-alkyl group, a branched C_3-C_{20} alkyl group, a cyclic alkyl group, a C_1-C_4-alkyl-substituted

cyclic alkyl group, a phenyl and a benzyl group, which groups may comprise heteroatoms,

R_1, R_2, and Ar are equal to R_1, R_2, and Ar in formula I, and

R'_2 is chosen from the group comprising a hydrogen atom and a C_1-C_{20}-alkyl and C_4-C_{20}-aryl group, which groups may comprise substituents,

and that the polymer with structural units of the formula I is prepared through polymerization with the aid of a base into a polymer which comprises units having the formula III



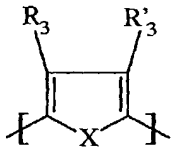
(III)

in which formula

- R_1, R_2, and Ar are equal to R_1, R_2, and Ar in formula II, and
- R''_2 is chosen from the group comprising R_2 and R'_2,

and for the preparation of the polymer with units having the formula I, in which formula t is equal to 1 or 2, through oxidation of at least a number of the units of the polymer having the formula III

2. A method as claimed in claim 1, characterized in that the method starts with a compound having the formula II in which –Ar- is the unit having the formula IV



(IV)

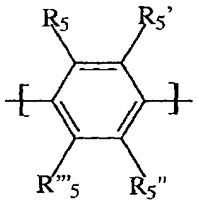
in which formula

X is chosen from the group of O, S, NR_6,

R_3 and R'_3 are chosen from the group comprising hydrogen, a chlorine, a bromine, a fluorine, and an iodine atom, a C_1-C_4-alkyl, a carbonitryl, trihalomethyl, hydroxy, nitro, amino, carboxyl, sulfoxyl, sulfonate and carbonate group, and a substituted and non-substituted phenyl, alkylaryl, and arylalkyl, alkoxy, and thioalkoxy group, and

R_6 is chosen from the group comprising a hydrogen atom and C_1-C_{20}-alkyl, aryl, C_1-C_{20}-alkylaryl, and arylalkyl group.

3. A method as claimed in claim 1, characterized in that the method starts with a compound having the formula II in which –Ar- is the unit having the formula V

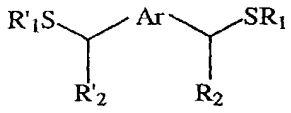


(V)

in which formula

R_5, R'_5, R''_5, and R'''_5 are chosen from the group comprising a hydrogen, chlorine, bromine, fluorine, and iodine atom, and C_1-C_{22}-alkyl, carbonitryl, trihalomethyl, hydroxy, nitro, amino, carboxyl, sulfoxyl, sulfonate, and carbonate group, and an optionally substituted phenyl, C_1-C_{22}-alkylaryl and arylalkyl, C_1-C_{22}-alkoxy, and C_1-C_{22}-thioalkoxy group.

4. A method of preparing compounds having the formula II



(II)

in which formula:

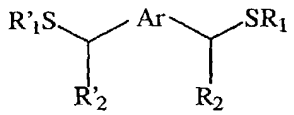
Ar is an aromatic cyclic system with 4 to 20 carbon atoms, which may be substituted with a substituent chosen from the group comprising a non-branched C_1-C_{20}-alkyl, C_3-C_{20}-alkoxy, C_1-C_{20}-alkylsulfate, a branched C_3-C_{20}-alkyl, phenyl or benzyl group and which may comprise up to 4 heteroatoms chosen from the group comprising oxygen, sulfur, and nitrogen in the aromatic cyclic system,

R_1 and R_1' are chosen from the group comprising a non-branched C_1-C_{20}-alkyl group, a branched C_3-C_{20} alkyl group, a cyclic alkyl group, a C_1-C_4-alkyl-substituted cyclic alkyl group, a C_4-C_{14}-aryl group, and a benzyl group, which groups may comprise heteroatoms,

R_2 and R_2' are chosen from the group comprising a hydrogen atom and a C_1-C_{20}-alkyl and a C_4-C_{20}-aryl group, which groups may comprise substituents,

characterized in that H-Ar-H reacts with R_1SH and R_2-(C=O)-H and with R'_1SH and R'_2-(C=O)-H so as to form the compound having the formula II.

5. Compounds having the formula II



(II)

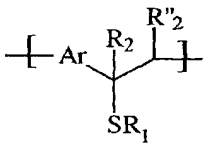
in which formula

Ar is an aromatic cyclic system with 4 to 20 carbon atoms, which may be substituted with a substituent chosen from the group comprising a non-branched C_1-C_{20}-alkyl, C_3-C_{20}-alkoxy, C_1-C_{20}-alkylsulfate, a branched C_3-C_{20}-alkyl, phenyl or benzyl group, and which may comprise up to 4 heteroatoms chosen from the group comprising oxygen, sulfur, and nitrogen in the aromatic cyclic system,

R_1 and R'_1 are chosen from the group comprising a non-branched C_1-C_{20}-alkyl group, a branched C_3-C_{20}-alkyl group, a cyclic alkyl group, a C_1-C_4-alkyl-substituted cyclic alkyl group, a C_4-C_{14}-aryl group, and a benzyl group, which groups may comprise heteroatoms,

R_2 is chosen from the group comprising a C_1-C_{20}-alkyl and C_4-C_{20}-aryl group, which groups may comprise substituents, and

R'_2 is chosen from the group comprising a hydrogen atom, a C_1-C_{20}-alkyl, and a C_4-C_{20}-aryl group, which groups may contain substituents.



6. Polymers with structural units having the formula III,

(III)

in which formula:

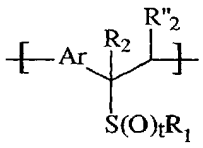
Ar is an aromatic cyclic system with 4 to 20 carbon atoms, which may be substituted with a substituent chosen from the group comprising a non-branched C_1-C_{20}-alkyl, C_3-C_{20}-alkoxy, C_1-C_{20}-alkylsulfate, a branched C_3-C_{20}-alkyl, phenyl or benzyl group, and which may comprise up to 4 heteroatoms

chosen from the group comprising oxygen, sulfur, and nitrogen in the aromatic cyclic system,

R_1 is chosen from the group comprising a non-branched C_1-C_{20}-alkyl group, a branched C_3-C_{20} alkyl group, a cyclic C_4-C_{20}-alkyl group, a C_1-C_4-alkyl-substituted cyclic C_4-C_{20}-alkyl group, a phenyl group and a benzyl group, which groups may comprise heteroatoms, and

R_2 and R''_2 are chosen from the group comprising a hydrogen atom and a C_1-C_{20}-alkyl and C_4-C_{20}-aryl group, which groups may comprise substituents.

7. Polymers with structural units having the formula I,



(I)

in which:

Ar is an aromatic cyclic system with 4 to 20 carbon atoms, which may be substituted with a substituent chosen from the group comprising a non-branched C_1-C_{20}-alkyl, C_3-C_{20}-alkoxy, C_1-C_{20}-alkylsulfate, a branched C_3-C_{20}-alkyl, phenyl or benzyl group, and which may comprise up to 4 heteroatoms chosen from the group comprising oxygen, sulfur, and nitrogen in the aromatic cyclic system,

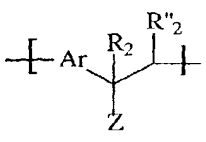
R_1 is chosen from the group comprising a non-branched C_1-C_{20}-alkyl group, a branched C_3-C_{20} alkyl group, a cyclic C_4-C_{20}-alkyl group, a C_1-C_4-alkyl-substituted cyclic C_4-C_{20}-alkyl group, a phenyl group and a benzyl group, which groups may comprise heteroatoms, and

R_2 and R''_2 are chosen from the group comprising a hydrogen atom and a C_1-C_{20}-alkyl and C_4-C_{20}-aryl group, which groups may comprise substituents, and

t is equal to 1 or 2,

characterized in that the polymers have an average chain length of at least 50 and at most 1000 units.

8. A composition of polymers with structural units having the formula IX:



(IX)

in which

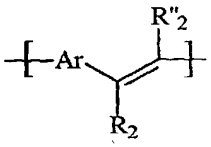
Ar is an aromatic cyclic system with 4 to 20 carbon atoms, which may be substituted with a substituent chosen from the group comprising a non-branched C_1-C_{20}- alkyl, C_3-C_{20}-alkoxy, C_1-C_{20}-alkylsulfate, a branched C_3-C_{20}-alkyl, phenyl or benzyl group and which may comprise up to 4 heteroatoms chosen from the group comprising oxygen, sulfur, and nitrogen in the aromatic cyclic system,

R_2 and R''_2 are chosen from the group comprising a hydrogen atom and a C_1-C_{20}-alkyl and C_4-C_{20}-aryl groups, which groups may optionally comprise substituents, and

Z is chosen from a group comprising $S(O)_pR_1$, OR_2, in which p is equal to 0, 1 or 2, and R_1 and R_2 are chosen from the group comprising a non-branched C_1-C_{20}-alkyl group, a branched C_3-C_{20}-alkyl group, a cyclic C_4-C_{20}-alkyl group, a C_1-C_4-alkyl-substituted cyclic C_4-C_{20}-alkyl group, a phenyl group, and a benzyl group, which groups may contain heteroatoms,

wherein a first fraction of the composition comprises polymers with structural units having the formula IX with Z equal to $S(O)_pR_1$ and a chain length of 50 to 1000 units, and a second fraction of the composition comprises polymers with a chain length of more than 1000 units.

9. A method of preparing a polymer with structural units having the formula VI,



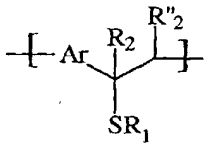
(VI)

in which formula:

Ar is an aromatic cyclic system with 4 to 20 carbon atoms, which may be substituted with a substituent chosen from among a non-branched C_1-C_{20}-alkyl, C_3-C_{20}-alkoxy, C_1-C_{20}-alkylsulfate, a branched C_3-C_{20}-alkyl, phenyl or benzyl group and which may comprise up to 4 heteroatoms chosen from the group comprising oxygen, sulfur, and nitrogen in the aromatic cyclic system, and

R_2 and R''_2 are chosen from the group comprising a hydrogen atom and a C_1-C_{20}-alkyl and C_4-C_{20}-aryl group, which groups may comprise substituents,

wherein a polymer comprising structural units having the formula III is directly converted into the polymer comprising structural units of the formula VI by heating under catalysis of acid, (III)

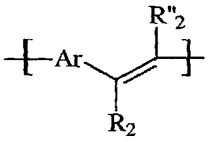


in which formula III:

R_1 is chosen from the group comprising a non-branched C_1-C_{20}-alkyl group, a branched C_3-C_{20} alkyl group, a cyclic C_4-C_{20}-alkyl group, a C_1-C_4-alkyl-substituted cyclic C_4-C_{20}-alkyl group, a phenyl group and a benzyl group, which groups may comprise heteroatoms, and

Ar, R_2 and R''_2 are equal to Ar, R_2 and R''_2 in formula VI.

10. A method of manufacturing a layer of a polymer with structural units having the formula VI,



(VI)

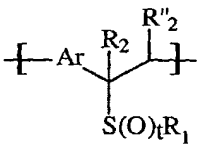
in which formula:

Ar is an aromatic cyclic system with 4 to 20 carbon atoms, which may be substituted with a substituent chosen from among a non-branched C_1-C_{20}-alkyl, C_3-C_{20}-alkoxy, C_1-C_{20}-alkylsulfate, a branched C_3-C_{20}-alkyl, phenyl or benzyl group and which may comprise up to 4 heteroatoms chosen from the group comprising oxygen, sulfur, and nitrogen in the aromatic cyclic system, and

R_2 and R''_2 are chosen from the group comprising a hydrogen atom and a C_1-C_{20}-alkyl and C_4-C_{20}-aryl group, which groups may comprise substituents,

which method comprises

- the application of a solution of the polymer comprising structural units having the formula I as a layer on a substrate,



(I)

in which formula I:

- t is equal to 0, 1 or 2,
- R_1 is chosen from the group comprising a non-branched C_1-C_{20}-alkyl group, a branched C_3-C_{20} alkyl group, a cyclic C_4-C_{20}-alkyl group, a C_1-C_4-alkyl-substituted cyclic C_4-C_{20}-alkyl group, a phenyl group, and a benzyl group, which groups may comprise heteroatoms, and
- R_2, R''_2, and Ar are equal to R_2, R''_2 and Ar, respectively, in formula VI, and
- the conversion through heating of the polymer comprising structural units of the formula I into the polymer comprising structural units of the formula VI,

characterized in that the solution to be provided as a layer comprises a polymer with structural units having the formula I, with a chain length of at least 50 and at most 1000 units.

11. A method as claimed in claim 10, characterized in that the solution to be provided as a layer also comprises a polymer with structural units having the formula I, with a chain length of at least 50 and at most 1000 units.

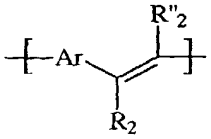
12. A method as claimed in claim 10, characterized in that

- the method starts with a solution of a polymer with structural units having the formula I, in which p is equal to 0, and
- the polymer with structural units having the formula I, in which p is equal to 0, is oxidized with a peroxide prior to the application of the solution as a layer, such that a polymer with structural units having the formula I is created in which p is equal to 1 in at least a proportion of the units.

13. A method as claimed in claim 10, characterized in that:

- the solution applied as the layer on the substrate contains the polymer with structural units having the formula I, in which p is equal to 0, and
- the conversion through heating is catalysed by acid.

14. An electronic device comprising a layer of a polymer with mainly the structural units having the formula VI:



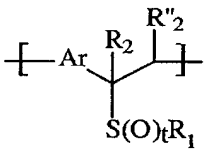
(VI)

in which formula:

Ar is an aromatic cyclic system with 4 to 20 carbon atoms, which may be substituted with a substituent chosen from the group comprising a non-branched C_1-C_{20}-alkyl, C_3-C_{20}-alkoxy, C_1-C_{20}-alkylsulfate, a branched C_3-C_{20}-alkyl, phenyl or benzyl group and which may comprise up to 4 heteroatoms chosen from the group comprising oxygen, sulfur, and nitrogen in the aromatic cyclic system, and

R_2 and R''_2 are chosen from the group comprising a hydrogen atom and a C_1-C_{20}-alkyl and C_4-C_{20}-aryl group, which groups may comprise substituents,

characterized in that the polymer is prepared from at least a polymer with structural units having the formula I, with a chain length of at least 50 and at most 1000 units,



(I)

in which formula I:

- t is equal to 0, 1, or 2,
- R_1 is chosen from the group comprising a non-branched C_1-C_{20}-alkyl group, a branched C_3-C_{20}-alkyl group, a cyclic C_4-C_{20}-alkyl group, a C_1-C_4-alkyl-substituted cyclic C_4-C_{20}-alkyl group, a phenyl group, and a benzyl group, which groups may comprise heteroatoms, and
- R_2, R''_2 and Ar are identical to R_2, R''_2, and Ar, respectively, in formula VI.